Stream Crossing and Livestock Access (Ft.) 728

DEFINITION

A constructed stable area extending either into or across streams or other shallow water bodies.

PURPOSES

This practice may be applied as part of a conservation system to accomplish one or more of the following purposes:

- To minimize sediment and nutrient delivery where livestock need access to streams or other shallow water bodies for watering and/or crossing.
- To minimize sediment and nutrient delivery where a vehicle crossing of shallow water bodies is needed.

CONDITIONS WHERE PRACTICE APPLIES

This standard applies where livestock may impact water quality by direct deposition of manure nutrients, organic matter, and pathogens; or livestock and vehicles may impact water quality by detachment and transport of sediment and nutrients from streambanks and shorelines, and where:

- Agricultural operations require access to water bodies for livestock watering.
- Livestock and/or vehicles need access to land on both sides of a shallow water body.
- Normal streamflow depths and velocities do not present a hazard.
- Alternative watering facilities located away from the surface waters are not practical or economically feasible.

If these conditions exist, livestock are to be excluded from the surface waters except for controlled access.

CRITERIA

General Criteria Applicable For All The Purposes Stated Above

Stream crossings and livestock access shall be planned, designed, and installed to meet all federal, state, local and tribal laws and regulations.

Stream crossing and livestock access facilities shall have a stable surface. The surface may either be coarse aggregate or concrete. Coarse aggregate shall be natural stone, crushed rock, or gravel. Follow layout and dimensions as shown on Michigan Standard Drawing SO-A-0780, Stream Crossing and Livestock Access.

Stream crossing and livestock access facilities shall have a stable foundation. They may not be placed on organic soils unless a suitable base is provided to support the anticipated animal or vehicular traffic loads.

Coarse aggregate surface ramps shall be underlaid by Class I woven geotextile in accordance with Construction Specification, NRCS-MI-165, Geotextiles. Where velocity based on flow depth at top of low bank is 3.5 feet per second (1 m/s) or less, the coarse aggregate material shall have a minimum D_{100} size of 1.5 inch (40 mm) with less than 5 percent passing the number 200 sieve. Where the velocity based on flow depth at top of low bank exceeds 3.5 feet per second (1 m/s), the size of the coarse aggregate material shall be determined by a site-specific design or alternative surfacing measures shall be employed. Where traffic may displace loose aggregate, alternative measures shall be considered. Address livestock comfort, as appropriate, when selecting coarse aggregate or alternative surfacing measures.

Concrete surfaced ramps shall have a minimum 5-inch (125 mm) thick slab. No joints, wire mesh, or fiber reinforcement are required for cast-in-place concrete slabs. The concrete surface shall be roughened to provide a non-skid surface. Concrete shall comply with the guidance in the current Construction Specification, NRCS-MI-158, Concrete Construction. Precast concrete panels may be used in lieu of cast-in-place concrete slabs. Precast concrete panels shall be designed to support the anticipated animal or vehicular loads. Concrete surfaced ramps

may not be placed on organic soils unless a suitable base is provided to support the anticipated animal or vehicular traffic loads.

The surface of the crossing/access in a channel shall be the same elevation as the lowest stable elevation of the channel crossing section.

The ramp for the crossing/access shall extend up to the existing top of bank elevation.

Construct a fence to exclude livestock from the remaining streambanks and surface waters. Refer to practice standards: Use Exclusion (472), Prescribed Grazing (528A), Filter Strip (393A), Riparian Herbaceous Cover (390), Riparian Forest Buffer (391), or other practice standards to determine the location of the fence and for the management of the land between streambank and fence. Construct permanent and temporary fences according to Fence (382) practice standard. Construct only temporary fence or "breakaway" fence below high water mark or ice flow mark.

Seed and mulch all exposed disturbed areas according to Critical Area Planting (342) practice standard. Use vegetation adapted to the site that will accomplish the desired purpose. Preference shall be given to native species in order to reduce the introduction of invasive plant species; provide management of existing invasive species; and minimize the economic, ecological, and human health impacts that invasive species may cause. If native plant materials are not adaptable or proven effective for the planned use, then non-native species may be used. Refer to the Field Office Technical Guide (FOTG), Section II, Invasive Plant Species, for plant materials identified as invasive species.

Criteria Applicable for Livestock Watering and/or Crossings

Ramp slope shall be 6:1 or flatter.

Width shall be minimum 10-feet (3 m) measured perpendicular to livestock travel direction.

Concrete surfaced ramps shall be placed over firm, native mineral soil material.

Provide livestock watering access locations, at least one every quarter mile (400 m) in accordance with Prescribed Grazing (528A) practice standard.

Criteria Applicable for Vehicle Crossings

Ramp slope shall be 8:1 or flatter.

Width shall be minimum 16-feet (5 m) measured perpendicular to vehicle travel direction.

Concrete surfaced ramps shall be placed over a minimum 4-inch (100 mm) thick layer of compacted sand underlaid by firm, native mineral soil material.

CONSIDERATIONS

Consider the potential effects of installation and operation of stream crossings and livestock access on the cultural, archaeological, historic and economic resources.

Where feasible and practical, consider alternative watering sources such as practice standards: Water Well (642), Spring Development (574), Pond (378), or Watering Facility (614). Also consider watering systems referenced in the Prescribed Grazing (528A) practice standard.

Where applicable, consider the following practice standards: Critical Area Planting (342), Heavy Use Area Protection (561), and Use Exclusion (472).

Obtain required local, state, and federal permits depending on the jurisdictional authority for the stream, county drain, or inter-county drain. Permits that may apply include, but are not limited to, the following:

1. Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act, 1994, P.A. 451.

   Permits may be required for development of livestock crossings and watering access if any of the following occurs:

   A. Dredging or other disruption of stream bottom material;

   B. Filling, including the placement of concrete, gravel, crushed stone, rock, or peastone;

C. Sloping and shaping of the immediate streambank, and other land alteration within 500 feet (150 m) of the stream;

D. Construction of ponds within 500 feet (150 m) of a lake or stream;

E. Alteration of wetland areas;

F. Disruption of flood flows; or

G. Certain streams classified by state and federal governments as wild and scenic rivers may have additional restrictions.

2. Construction of crossing and/or watering access along county drains may need a permit from the County Drain Commissioner or Drain Board.

3. Livestock crossings and/or watering access along inter-county drains may need a permit from the Inter-County Drainage Board.

Watering access may have a stub ditch to recess the site away from the stream channel in order to provide ice flow protection in the winter. These recessed sites must maintain some water circulation to minimize the potential for accumulation of stagnant water.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended use.

Support data documentation requirements are as follows:

- Inventory and evaluation records
  - Conservation Assistance notes or special report
- Survey notes, where applicable
  - Design survey
  - Construction layout survey
  - Construction check survey
- Design records
  - Physical data, functional requirements and site constraints, where applicable
  - Soils/subsurface investigation report, where applicable
- Design and quantity calculations
- Construction drawings/specifications with:
  - Location map
  - "Designed by" and "Checked by" names or initials
  - Approval signature
  - Job class designation
  - Initials from preconstruction conference
  - As-built notes
- Construction inspection records
  - Conservation Assistance notes or separate inspection records
  - Construction approval signature
- Record of any variances approved, where applicable
- Record of approvals of in-field changes affecting function and/or job class, where applicable

OPERATION AND MAINTENANCE

An operation and maintenance plan for the stream crossing or livestock access shall be incorporated into the operation and maintenance plan developed for the practice. The operation and maintenance plan shall be consistent with the purposes of the practice, its intended life, safety requirements, and the criteria for the design. The plan shall include, but is not limited to, the following provisions:

- Operation will consist of periodic inspections to ensure the stream crossing and livestock access will function as intended. Inspections are recommended after an ice flow or major storm event that may have caused damage to any of the components. At a minimum, inspections shall be conducted annually.

- Maintenance will consist of repairs that may be needed following major storm events that caused damage, or where there are any signs of deterioration or wear that interfere with the normal operation of this practice. Items that may need repair or replacement include, but are not limited to, the following:

  - Replace damaged or broken fence posts.

  - Repair broken fencing, twisted fencing, or fencing detached from posts.

- Reseed areas where vegetation has died or been removed.

- Replace stone (coarse aggregate) displaced from the ramp surface.

- Remove debris collected in the fencing.